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Serial No.: 10/563,711
Office Action dated: 12/23/08
Response dated: 03/19/09

PATENT
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Listing and Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method for encoding a video signal in a video encoder with reduced noise, comprising the steps of:

- estimating motion for each macroblock in an input video signal to the video encoder N times (where N is an integer) to yield N sets of motion estimation decision sets, each set including a reference picture index and motion vector;
- creating, for each macroblock, a noise reduced macroblock using the N sets of motion estimation data; and
- encoding each noise reduced macroblock using a best one of the motion estimation data sets.

2. (Original) The method according to claim 1 wherein the step of estimating motion further includes the step estimating the motion N times using each of N different reference pictures.

3. (Original) The method according to claim 1 wherein the step of creating the noise reduced macroblock further comprises the steps of:

- selecting at least a plurality of the N sets of motion estimation decision sets;
- and
- temporally filtering each pixel in the macroblock to using the selected motion estimation decision sets.

4. (Original) The method according to claim 3 wherein the selecting step further comprises the steps of:

- generating a predictor for each motion estimation decision set;
- calculating a difference between the predictor and the current pixel;
- determining whether the difference is less than a threshold; and if so

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selecting the motion estimation decision set whose difference is less than the threshold.

5. (Original) The method according to claim 1 further comprising the step of spatially filtering the input video prior to estimating motion.

6. (Currently amended) A method for encoding a video signal with reduced noise in a video encoder, comprising the steps of:

estimating motion for each macroblock in an input video signal to the video encoder N times (where N is an integer) using each of N separate reference pictures to yield N sets of motion estimation decision sets, each set including a reference picture index and motion vector;

creating, for each macroblock, a noise reduced macroblock using the N sets of motion estimation data; and

encoding each noise reduced macroblock using the best one of the motion estimation data

7. (Original) A video encoder, comprising:

a motion estimation stage for estimating the motion in each macroblock of an input video signal N times (where N is an integer) to yield N sets of motion estimation decision sets, each set including a reference picture index and motion vector,

a noise reducer for creating a noise reduced macroblock using the N sets of motion estimation data;

encoding means for encoding the noise reduced macroblock

8. (Original) The encoder according to claim 7 further including a reference picture store for storing coded pictures and where the motion estimation stage estimates the motion N times using each of N different stored reference pictures.

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9. (Original) The encoder according to claim 7 further comprising:
a reference picture store for storing the coded pictures;
means for applying the stored previously coded pictures as input video stream
to for estimating the motion for each macroblock to yield the N sets of motion
estimation decision sets; while
means for applying the motion estimation decision sets to filter pictures for
noise reduction.

10. (Original) The encoder according to claim 7 further comprising a spatial
filter for spatially filtering the input video prior to performing motion estimation.